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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,392	06/30/2003	Jing Xiang	120-038	1535
34845	7590	04/30/2007		
McGUINNESS & MANARAS LLP 125 NAGOG PARK ACTON, MA 01720			EXAMINER PATEL, CHANDRAHAS B	
			ART UNIT	PAPER NUMBER
			2616	
			MAIL DATE	DELIVERY MODE
			04/30/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/611,392	Applicant(s) XIANG, JING	
	Examiner Chandahas Patel	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Page 2, line 29 references TOS field by numeral 12m. Numeral 12m is not shown in Fig. 1. Page 5, line 17, Page 5, line 20, and Page 6, line 1 state a traffic streams includes packet A1, A2 and A3. Fig. 3 shows packets A1 and A2, however it does not have packet A3. Page 8, lines 5-6 state Fig. 4 includes a packet processor 56, a parser 52 and a packet buffer 54. Looking at Fig. 4, it does not have any of the above components. Page 8, line 10 states receiving packets on line 53. However, line 53 is not shown in any of the drawings. Fig. 5, Numeral 55 is not described in specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claim 1 is objected to because of the following informalities: Claim 1 does not end with a period. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3-4, 12, 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Regarding claims 3, 4,** applicant states, “the step of forwarding...” in line 1 of claims 3 and 4. Claims 3 and 4 depend from claim 2. It is not clear to which forwarding step is applicant referring to since claim 2 does not have the forwarding step.

**Regarding claim 12,** its not clear as to what applicant refers to as “the step of discarding the received packet ...” in line 1 of claim 12. Claim 12 depends from claim 1. Claim 1 does not have the step of discarding the received packet.

**Regarding claims 14-17,** claims 14-17 depend from claim 8. Claim 8 does not have an apparatus as stated in claims 14-17. Examiner assumes that claims 14-17 depend from claim 13 for further examination of these claims.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Yi et al. (USPN 6,498,787, Herein as Yi).

**Regarding claim 1**, Yi teaches a method of assigning sequence numbers to packets for transmission over a network **[Fig. 3]** comprising the steps of: identifying a service level associated with a packet **[Fig. 3, 301]**, wherein the service level is selected from a set of at least two service levels available for packets in the network **[Col. 5, lines 13-17]**; responsive to the service level associated with the packet assigning a sequence number to the packet **[Fig. 3, 317]**, wherein the sequence number is related, to a sequence number of a previously transmitted packet of the same service level **[Col. 4, lines 49-54]**; and forwarding the packet over the network **[Fig. 3, 321]**.

7. Claims 2, 3, 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Alao et al. (USPN 7,017,175, Herein as Alao).

**Regarding claim 2**, Alao teaches a method for determining whether to discard a received packet at a node **[Fig. 8]** the method including the steps of: comparing a sequence number associated with the received packet against sequence numbers associated with a selected number of previously received packets **[Col. 13, lines 65-67]**, wherein the received packet has a service level associated therewith, and wherein the selected number of previously received packets are of the same service level as the received packet **[Co. 15, lines 3-6, each fragment ID specifies service level of the received packets as discussed in Col. 15, lines 16-19]**; and discarding the received packet in the event of a match between any one of the sequence numbers associated

with the selected number of previously received packets and the sequence number associated with the received packet [Col. 13, lines 67 – Col. 14, lines 1-2].

**Regarding claim 3**, Alao teaches forwarding the received packet for processing if there is no match between any of the sequence numbers associated with the selected number of previously received packets and the sequence number of the received packet [Col. 14, lines 35-41, message will be only processed if not rejected initially based on rejection window].

**Regarding claim 13**, Alao teaches an apparatus for discarding redundant packets received at a receiving node [Col. 14 lines 12-24], comprising: a sequence number buffer [Fig. 8], for storing sequence numbers associated with packets received at the receiving node [Col. 13, lines 63-65] an anti-replay bitmask table, each entry associated with a service level [Col. 15, lines 3-6, each fragment ID specifies service level of the received packets as discussed in Col. 15, lines 16-19] and storing the bitmask of sequence numbers of previously received packets to be compared in determining whether to discard a received packet [Col. 13 lines 65-67 – Col. 14, lines 1-2].

8. Claims 10, 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Koodli et al. (USPN 7,000,120, Herein as Koodli).

**Regarding claim 10**, Koodli teaches an apparatus for assigning sequence numbers at the sending node of IPSec tunnel [Col. 3, lines 5-11], comprising; a sequence number table [Fig. 4A, 500], each entry associated with a service level [Fig. 4A, 403] and storing a number representing the last sequence number for that service level [Fig. 3, 340-2, Col. 6, lines 22-26]; and means for

assigning a sequence number, to a Packet to be transmitted based on the service level of the packet [Col. 6, lines 22-26].

**Regarding claim 11**, Koodli teaches assigning sequence number operates to incrementing a sequence number for that service level from the last sequence number to provide a new sequence number to assign to the packet [Col. 2, lines 20-23].

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alao et al. (USPN 7,017,175, Herein as Alao) in view of Nagarajan et al. (USPN 7,099,327, Herein as Nagarajan).

**Regarding claim 4**, Alao teaches a method as discussed in rejection of claim 2.

However, Alao does not teach forwarding the received packet for processing if the packet is received a predetermined time after the selected number of previously received packets.

Nagarajan teaches forwarding the received packet for processing if the packet is received a predetermined time after the selected number of previously received packets [Col. 6, lines 35-46].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to forward the received packets for processing after a selected number of previous packets are received since sequence numbers are allocated using a finite number of bits so they will be repeated after a maximum finite value [Col. 6, lines 32-35].

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yi et al. (USPN 6,498,787, Herein as Yi) in view of Zdan (USPN 7,020,143).

**Regarding claim 5**, Yi teaches a method as discussed in rejection of claim 1.

However, Yi does not teach determining service level in response to a differentiated services codepoint (DSCP) associated with the packet.

Zdan teaches determining service level in response to a DSCP associated with the packet [Col. 5, lines 46-57].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to determine service level in response to DSCP associated with the packet so that QoS can be implemented without the need for per-flow signaling and state maintenance in each traversed node [Col. 5, lines 53-57].

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yi et al. (USPN 6,498,787, Herein as Yi) in view of Koodli et al. (USPN 7,000,120, Herein as Koodli).

**Regarding claim 6**, Yi teaches a method as discussed in rejection of claim 1.

However, Yi does not teach there are at least two service levels and the sequence number corresponding to a higher priority service level is separate from the sequence number corresponding to a lower priority service level.

Koodli teaches there are at least two service levels and the sequence number corresponding to a higher priority service level is separate from the sequence number corresponding to a lower priority service level [Fig. 4A, 403 are the 1<sup>st</sup> two bits of sequence



**number depending on type of protocol which would make sequence number of each priority level different since 1<sup>st</sup> two bits are different].**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have different sequence corresponding to different priority service level so that information about service level could be stored in the sequence number field of the security protocol header **[Col. 3, lines 54-57]**.

13. Claim 7-9, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alao et al. (USPN 7,017,175, Herein as Alao) in view of Zdan (USPN 7,020,143).

**Regarding claims 7 and 14**, Alao teaches a method as discussed in rejection of claim 3 and an apparatus as discussed in rejection claim 13.

However, Alao does not teach at least one of the service levels corresponds to an Expedited Forwarding (EP) per hop behavior.

Zdan teaches at least one of the service levels corresponds to an EP behavior **[Col. 5, lines 66-67 – Col. 6, line 1]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the service level to correspond to an EP behavior since it's a currently defined standard PHB group **[Col. 5, lines 66-67 – Col. 6, line 1]**.

**Regarding claims 8 and 15**, Alao teaches a method as discussed in rejection of claim 3 and an apparatus as discussed in rejection claim 13.

However, Alao does not teach at least one of the service levels corresponds to an Assured Forwarding (AF) per hop behavior.

Zdan teaches at least one of the service levels corresponds to an AF behavior [**Col. 5, lines 66-67 – Col. 6, line 1**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the service level to correspond to an AF behavior since it's a currently defined standard PHB group [**Col. 5, lines 66-67 – Col. 6, line 1**].

**Regarding claims 9 and 16**, Alao teaches a method as discussed in rejection of claim 3 and an apparatus as discussed in rejection claim 13.

However, Alao does not teach at least one of the service levels corresponds to a Best Efforts (BE) per hop behavior.

Zdan teaches at least one of the service levels corresponds to a BE behavior [**Col. 5, lines 66-67 – Col. 6, line 1**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the service level to correspond to a BE behavior since it's a currently defined standard PHB group [**Col. 5, lines 66-67 – Col. 6, line 1**].

14. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yi et al. (USPN 6,498,787, Herein as Yi) in view of Lahti et al. (US-PGPUB 2004/0008711, Herein as Lahti).

**Regarding claim 12**, Yi teaches a method as discussed in rejection of claim 1.

However, Yi does not teach discarding the received the packet if a match is performed in accordance with an IPsec anti-replay mechanism.

Lahti teaches discarding the received the packet if a match is performed in accordance with an IPsec anti-replay mechanism [**Page 2, Paragraph 21**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to discard the received packet if a match is performed in accordance with an IPsec anti-replay mechanism to verify that duplicates of a data packet are not being received [**Page 2, Paragraph 21**].

15. Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Alao et al. (USPN 7,017,175, Herein as Alao) in view of Koodli et al. (USPN 7,000,120, Herein as Koodli).

**Regarding claim 17**, Alao teaches an apparatus as discussed in rejection of claim 17.

However, Alao does not teach the apparatus operates according to an IPsec protocol.

Koodli teaches that apparatus operates according to an IPsec protocol [**Col. 4, lines 24-26**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the apparatus that operates according to an IPsec protocol since IPsec provides various security services for traffic at IP layer [**Col. 1, lines 29-31**].

16. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alao et al. (USPN 7,017,175, Herein as Alao) in view of Koodli et al. (USPN 7,000,120, Herein as Koodli).

**Regarding claim 18**, Alao teaches an apparatus comprising: means for receiving a plurality of packets having an associated plurality of sequence numbers [**Col. 13, lines 63-67**], wherein each one of the packets has a service level associated therewith [**Col. 15, lines 3-6, each fragment ID specifies service level of the received packets as discussed in Col. 15, lines 16-19**]; means for comparing, for each received packet, a received packet sequence number of each

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received packet against a set of previously received sequence numbers [Col. 13, lines 65-67], wherein the set of sequence numbers include only sequence numbers of packets, previously received within a window and having a service level type corresponding to a service level type of the received packet [Col. 13, lines 63-65]; and means for discarding the packet if a match between the received sequence number and any of the sequence numbers in the set of sequence numbers [Col. 13, lines 67 – Col. 14, line, 1-2].

However, Alao does not teach there are at least two types of service levels.

Koodli teaches there are at least two types of service levels [Fig. 4A, 403].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least two type of service levels so that appropriate service level can be identified [Col. 6, lines 59-61].

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chandrahas Patel whose telephone number is 571-270-1211. The examiner can normally be reached on Monday through Thursday 7:30 to 17:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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